

REMARKS

Claims 1 through 12 and 14 through 17 are pending in this application. Claims 1 and 2 have been amended, claim 13 cancelled and new claim 17 added. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support for the present amendment should be apparent throughout the originally filed disclosure as, for example, the paragraph bridging pages 16 and 17 of the written description of the specification, noting that claim 2 has been placed in independent form. Applicant submits that the present amendment does not generate any new matter issue.

Status of claim 2.

In the Office Action Summary, the Examiner indicated that claim 2 is subject to objection. On page 2 of the June 25, 2004 Office Action, however, the Examiner rejected claims 1 through 16. But on page 3, the Examiner indicated that claim 2 contains allowable subject matter.

Based on the foregoing, Applicant is proceeding on the basis that claim 2 contains allowable subject matter.

On page 2 of the Office Action, the Examiner rejected claims 1 through 16 under 35 U.S.C. § 103 for obviousness predicated upon the acknowledged prior art (pages 3 and 4 of the written description of the specification) in view of Matsumoto et al. and Nishida et al.

In the statement of the rejection the Examiner asserted that the acknowledged prior art method differs from that claimed in that it does not involve simultaneously polishing excess first and second oxide fill, employing a CVD for the first oxide fill and the LPCVD for the second

fill. The Examiner then concluded that one having ordinary skill in the art would have been motivated to modify the acknowledged prior art method to arrive at that claimed in view of Matsumoto and Nishida et al. This rejection is traversed.

Independent claim 1 and the claims dependent thereon.

In accordance with the method defined in claim 1, an embedded semiconductor film is formed in the second trench. This step is neither disclosed nor suggested by any of the applied references. Indeed, it should be apparent that in accordance with the teachings of the acknowledged prior art, Matsumoto and Nishida, an embedded oxide film is filled into a deep trench.

The bottom line is that none of the applied references discloses or suggests embedding a semiconductor film in a deep trench. Accordingly, even if the applied references are combined, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Independent claim 2 and the claims dependent thereon

As noted above, Applicant is proceeding on the basis that claim 2 contains allowable subject matter and, hence, independent claim 2 is in condition for allowance. Nevertheless, in an abundance of caution due to the ambiguity in the Office Action, Applicants submit that the acknowledged prior art neither discloses nor suggests the method defined in independent claim 2. Indeed, none of the applied references discloses or suggests the manipulative steps set forth in independent claim 2, including forming a second film superior in coverage to the first film on the first film, and then forming the second trench by etching through the first and second films

which serve as masks. Applicants would note that Nishida et al. neither disclose nor suggest the concept of forming first and second films prior to etching to form the second deep trench.

Rather, the disclosure in Nishida et al. concerning the use of different deposition techniques relates to filling first and second trenches.

Conclusion

Based upon the foregoing it should be apparent that even if the applied references are combined as suggested by the Examiner, and Applicant does not agree that the requisite fact-based motivation has been established, none of the claimed inventions would result. *Uniroyal v. Rudki-Wiley supra*. Applicants, therefore, submit that the imposed rejection of claims 1 through 16¹ under 35 U.S.C. § 103 for obviousness predicated upon the acknowledged prior art in view of Matsumoto and Nishida et al. is not factually or legally viable and, hence, solicit withdrawal thereof.

New claim 17.

New claim 17 is free of the applied prior art by virtue of its dependence upon independent claim 1, the patentability of which has been argued *supra*. Moreover, Applicants separately argue the patentability of claim 17 based upon the limitation expressed therein. None of the applied references discloses or suggests filling a method as claimed comprising filling a deep trench with polysilicon.

¹ Assuming the Examiner intended to reject claim 2.


Serial No.: 10/768,170

Based on the foregoing it should be apparent that the imposed rejection has been overcome and that all active claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Date: September 13, 2004